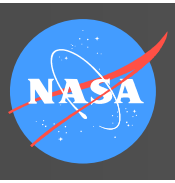

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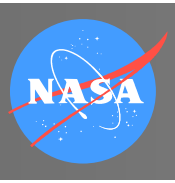
Earth Science Data Systems Working Group
Standards Process Group Meeting

Richard Ullman

June 15, 2005

San Diego, CA



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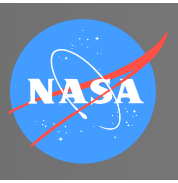
Motivation

- Scientific inquiry requires data interoperability and interuse
- Interopeability and interuse require agreements on methods
- Future Data Systems Features (January 2004)
  - Selection and management will emphasize flexibility and accountability over centralization.
  - More distributed geographically, functionally and managerially.
  - Diversity in implementation will be encouraged - with coordination at the interfaces.
  - Responsiveness to defined communities, services to broad community.
  - Ability to add new data system components, independently developed and independently managed without unduly perturbing existing systems
  - Data systems will innovate to serve new community needs.
  - Future NASA data systems components will be judged partly on how well they interoperate using community-identified practices.



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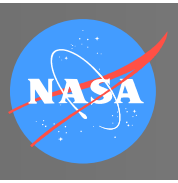
The Standards Process Group (SPG)

- History: Starting in January 2004, NASA instituted a set of internal working groups to develop ongoing recommendations for evolution of Earth Science Data Systems development and management within NASA. One of these Data Systems Working Groups is called the Standards Process Group.
- Goal: Facilitate broader use of data standards that have proven implementation and operational benefit to NASA Earth science.
- This is a new strategy for standards:
  - Grass-roots rather than top-down.
  - Only after practices have been shown to (1) have demonstrated implementation and (2) benefit to operation will they be adopted as standards



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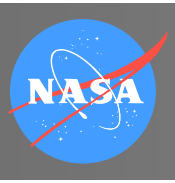
Insights (why the SPG?)

- Interoperability does not require homogeneous systems, but rather coordination at the interfaces.
- Management can judge success based upon program goals rather than dictate solutions.
  - example: degree of interoperability rather than use of particular data format.
- Communities of practice are in best position to recommend solutions.
- Publication of practices is necessary for wider adoption.
- Accelerate “evolution” of practices through better communication.
  - From: successful practice in specific community
  - To: broader community adoption
  - To: community-recognized “standards”



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Standards Process Group Strategy

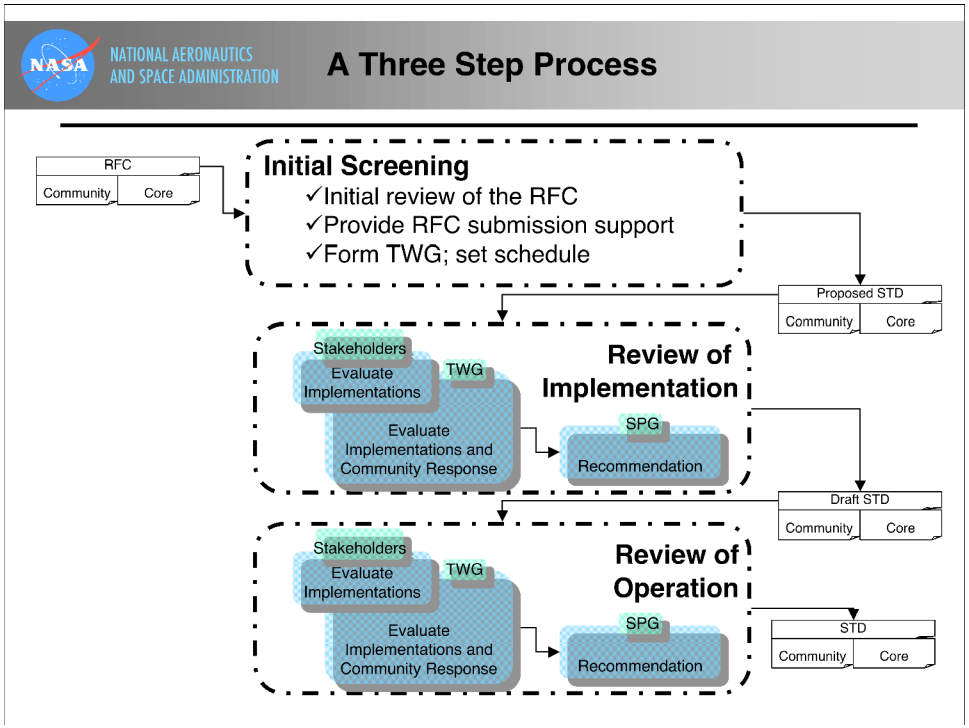
- Adopt standards at the interfaces, appropriate to given science and drawn from successful practice.
  - Find specifications with a potentially wide appeal
  - Draw attention to a much broader audience
  - Monitor use, promote what works well
  - Result : Accelerate the evolution and adoption

- Preferred source of RFC is community nomination.
- Possible to direct creation of RFC in response to identified needs.

- Consequence of endorsement
  - Future NASA data systems component proposals will be judged partly on how well they interoperate using community-identified practices or else justify why departure from community has greater benefit.

The Request For Comment Process

- Proposed standards (RFC's) are submitted by practitioners within the NASA community. These are evaluated in three phases by the SPG and the broader community to assess workability of implementation and success of operation.



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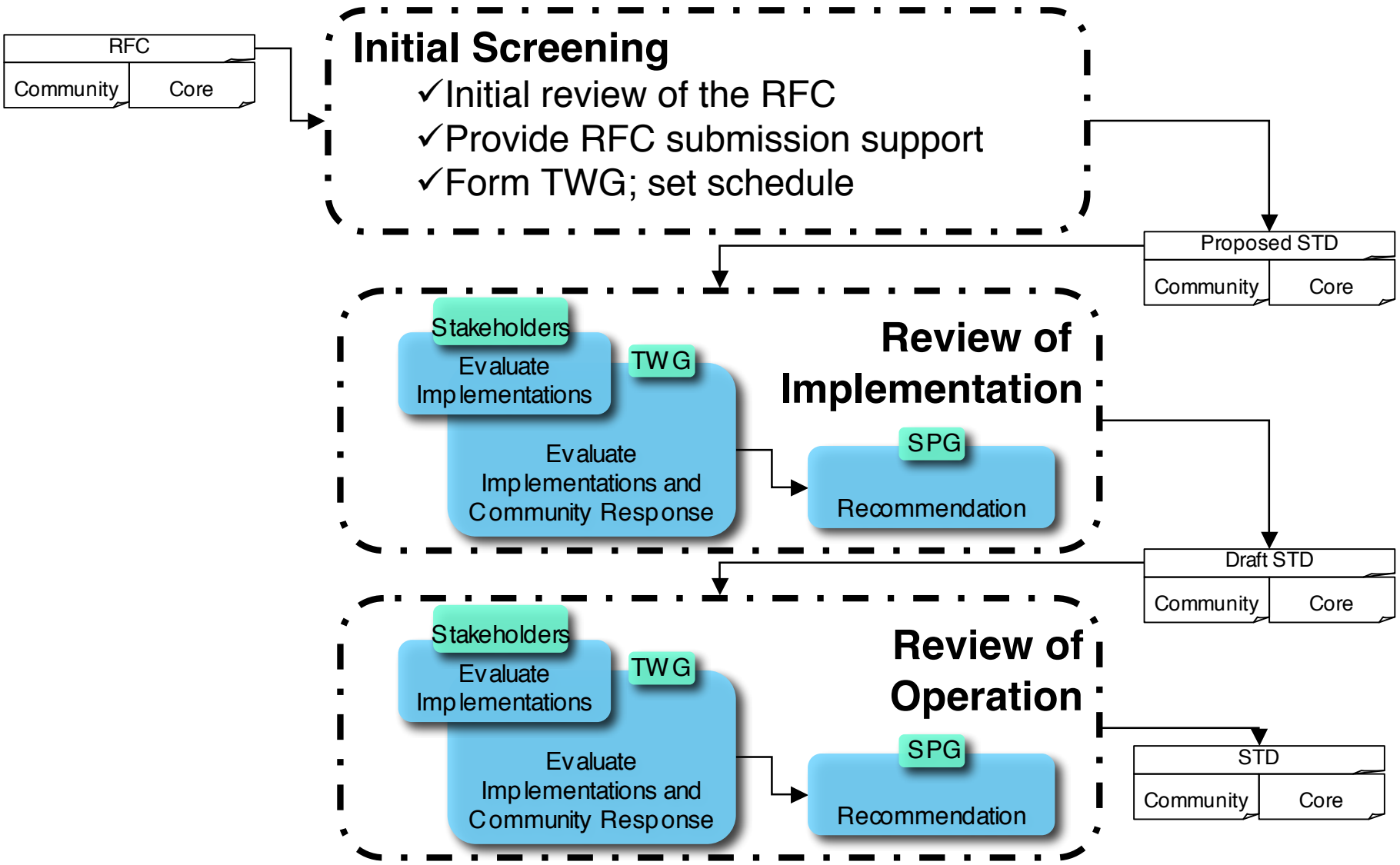
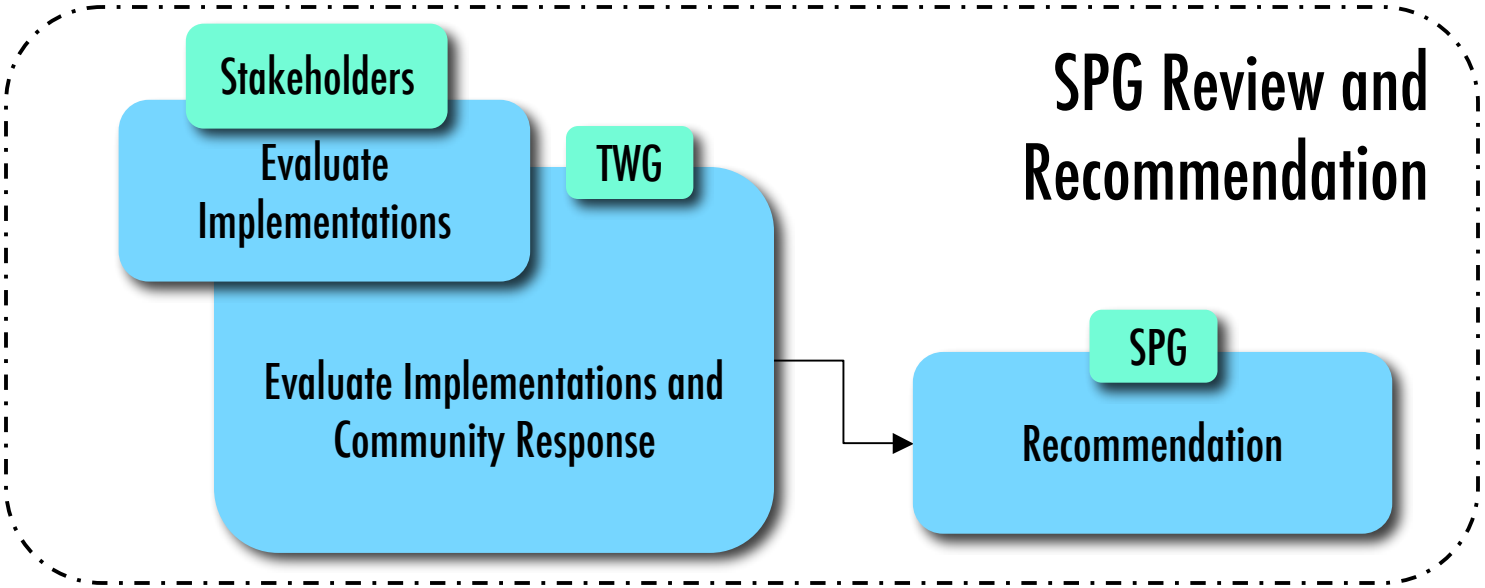
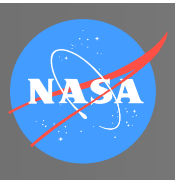
A Three Step Process



SPG Review


SPG Review and Recommendation
Stakeholders
Evaluate Implementations
TWG
Evaluate Implementations and Community Response
SPG
Recommendation



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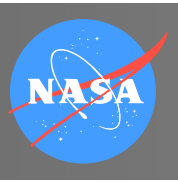
Benefit of publishing through the SPG

- Benefit to community/project that proposes “RFC”
  - Encourage consensus within the community.
  - Grows use of common practices among related activities.
  - Wider discipline community learns from successful practice.
  - Lowers barriers to entry and use of NASA data by external discipline communities within NASA and outside NASA.
- Benefit to NASA data systems of community endorsement:
  - NASA Earth science data management can rely on standards to achieve highest priority interoperability.
  - Science investigators are assured that standards contribute to science success in their discipline.



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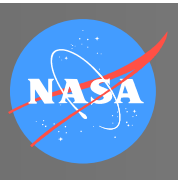
Kinds of Practices Suitable for SPG

- Any data system practice that increases interoperability or interuse of data within a community or among communities.
  - Standard - Documents Operational Use
  - Tech Note - Builds community awareness; sometimes a precursor to a standard
- Examples:
  - Describe science content (e.g. Content standard for a level-2 precipitation product, surface reflectance product content)
  - Describe interface (e.g. Data Access Protocol, Web Map Server)
  - Describe metadata (e.g. DIF, ECHO)
  - Describe File Format (e.g. HDF, GeoTIFF)
  - Best Practices (e.g. File naming conventions, data management procedures)



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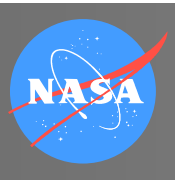
Successful RFCs will have

- At least two implementers.
- Demonstrated operational benefit.
- Strong community leadership to support and use standard
  - Leadership in generating the RFC.
  - Community willing/able to review
- Potential for “impact” and spillover to other communities



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Responsibilities

- Community Leader
  - Identify someone in their community who will document standard according to SPG guidelines.
  - Work with the community to get an extended review of the proposed standard.

- SPG
  - Assign “RFC editor” to advise on RFC document.
  - Publish and publicize RFC
  - Assign “TWG”, technical working group to organize community review and evaluate responses.
  - Recommend action to NASA HQ.